

CLAIMS

What is claimed is:

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1. A display device, comprising:
a spectral separator configured to separate multispectral light into a plurality of light bands; and
10 a homogenizing element configured to homogenize at least one separated light band.

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2. The display device of claim 1, further comprising a light source configured to produce the multispectral light.

3. The display device of claim 1, further comprising an image-forming element configured to form an image using the homogenized light band.

4. The display device of claim 3, where the homogenized light band
20 is configured to have a cross-section that facilitates scanning onto the image-forming element.

5. The display device of claim 4, where the cross-section includes an elongate ribbon.

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6. The display device of claim 1, where the spectral separator includes a prism.

7. The display device of claim 1, where the spectral separator is
30 configured to separate the multispectral light into at least three light bands.

8. The display device of claim 7, where the at least three light bands include red, green, and blue light bands.

5 9. The display device of claim 1, comprising at least one homogenizing element for each separated light band.

10 10. The display device of claim 9, where each homogenizing element includes an inverse prism.

11 11. The display device of claim 9, where each homogenizing element includes a light pipe.

15 12. The display device of claim 1, further comprising an interlacing structure configured to interlace the separated light bands.

13. The display device of claim 12, where the interlacing structure include a plurality of dichroic mirrors.

20 14. The display device of claim 1, where the image-forming element includes a micromirror array.

25 15. A method of making a display device, comprising:
providing a light source;
providing a spectral separator configured to separate the light from the light source into a plurality of light bands;
providing a homogenizing element configured to homogenize at least one separated light band;
providing an image-forming element configured to form an image from
30 the homogenized light.

16. The method of claim 15, where providing the light source includes providing a multispectral light source;

providing the spectral separator includes providing a prism;

providing the homogenizing element includes providing a light pipe; and

5 providing the image-forming element includes providing a micromirror array.

17. The method of claim 15, further comprising providing an interlacing structure configured to interlace a plurality of homogenized light
10 bands.

18. The method of claim 17, further comprising providing a scanning device configured to scan the interlaced homogenized light bands across the image-forming element.

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19. A method of forming a projected image, comprising generating multispectral light;

separating the multispectral light into a plurality of light bands;

homogenizing at least one separated light band; and

20 forming an image using at least one homogenized light band.

20. The method of claim 19, where generating multispectral light includes generating substantially white light.

25 21. The method of claim 19, where separating the multispectral light into a plurality of light bands includes passing the multispectral light through a prism.

22. The method of claim 19, where homogenizing at least one
30 separated light band includes passing the light band through a light pipe.

23. The method of claim 19, where homogenizing at least one separated light band includes passing the light band through an inverse prism.

24. The method of claim 19, where forming an image includes
5 selectively reflecting the light band from a reflective image-forming element.

25. The method of claim 24, where the image-forming element includes a micromirror array.

10 26. The method of claim 19, where forming an image includes scanning at least one homogenized light band across an image-forming element.

27. The method of claim 26, where the scanned homogenized light
15 band has the shape of an elongate ribbon.

28. The method of claim 19, including homogenizing each of a plurality of separated light bands.

20 29. The method of claim 28, further comprising interlacing the plural homogenized light bands.

30. A storage medium readable by a processor, having embodied therein a program of commands executable by the processor to:
25 generate multispectral light;
separate the multispectral light into a plurality of light bands;
homogenize at least one separated light band; and
form an image using at least one homogenized light band.

30 31. The storage medium of claim 30, the storage medium further having embodied therein a program of commands executable by the processor to homogenize each of a plurality of separated light bands.

32. The storage medium of claim 31, the storage medium further having embodied therein a program of commands executable by the processor to interlace the plural homogenized light bands.

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33. The storage medium of claim 32, the storage medium further having embodied therein a program of commands executable by the processor to scan at least one homogenized light band across an image-forming element.

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34. A display device, comprising:
means for separating multispectral light into bands; and
means for homogenizing the separated bands.

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35. The display device of claim 34, further comprising:
means for producing multispectral light; and
means for forming an image using the separated bands.